



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/725,694	11/29/2000	Yong Cao	UA0029 US NA	8823

23906 7590 05/20/2003

E I DU PONT DE NEMOURS AND COMPANY  
LEGAL PATENT RECORDS CENTER  
BARLEY MILL PLAZA 25/1128  
4417 LANCASTER PIKE  
WILMINGTON, DE 19805

EXAMINER

YAMNITZKY, MARIE ROSE

ART UNIT	PAPER NUMBER
----------	--------------

1774

DATE MAILED: 05/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicati n N .

09/725,694

Applicant(s)

CAO ET AL.

Examiner

Marie R. Yamnitzky

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 December 2002 and 03 February 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4,5 and 7-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,7-18 and 21-23 is/are rejected.
- 7) ☒ Claim(s) 19 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 1774

1. This Office action is in response to applicants' amendment received December 23, 2002 (Paper No. 13), which amends the specification and claims 1, 4, 5, 7, 8, 10, 11, 13 and 15-20, cancels claims 3 and 6, and adds claims 21-23.

This Office action is also in response to applicants' supplemental amendment received February 03, 2003 (Paper No. 14), which amends the specification.

Claims 1, 2, 4, 5 and 7-23 are pending.

2. In view of the decision mailed February 07, 2003 granting applicants' petition to accept an unintentionally delayed claim for priority under 35 U.S.C. §120, WO 99/39394 and U.S. Application No. 09/241,656 (now U.S. Patent No. 6,441,395) are withdrawn as prior art.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 4, 5, 7, 8, 10, 11, 13, 15, 16 and 21-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Angelopoulos et al. (6,193,909 B1).

See the whole patent. In particular, see column 1, line 22-c. 3, l. 15, c. 4, l. 12-16, c. 6, l. 61-c. 7, l. 45, c. 10, l. 55-c.11, l. 61 and c. 15, l. 64-c. 16, l. 11.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 4, 5, 7-18 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angelopoulos et al. (6,193,909 B1).

See the whole patent. In particular, see column 1, line 22-c. 3, l. 15, c. 4, l. 12-16, c. 6, l. 61-c. 7, l. 45, c. 10, l. 55-c.11, l. 61 and c. 15, l. 64-c. 16, l. 11.

The prior art discloses polyaniline doped with a dopant such as 2-acrylamido-2-methyl-1-propanesulfonic acid which has pendant chemical crosslinkable groups. The prior art teaches that cross-linking occurs between the crosslinkable groups of the dopant. It is the examiner's understanding that upon cross-linking of the crosslinkable groups of the dopant, the dopant will be poly(2-acrylamido-2-methyl-1-propanesulfonic acid).

The prior art teaches that the doped polyaniline may be combined with polymers such as urethanes to form conducting thermosets, and can be combined with thermoplastic polymers to form conducting blends. It is the examiner's position that it would have been within the level of ordinary skill of a worker in the art at the time of the invention to determine suitable and

optimum polymers to be combined with the doped polyaniline guided by factors such as the intended use of the conductive film and the properties that a particular polymer would lend to the film.

The prior art teaches that a film of the doped polyaniline may be used as an electroluminescent polymer in a light emitting diode.

The prior art does not disclose the electrical resistivity of films of the doped polyaniline as required by various of the present claims. As taught in the present specification, this electrical resistivity is a property of a specific material and does not change with dimension (e.g. see pages 3-4 of the specification). It is the examiner's position that it would have been within the level of ordinary skill of a worker in the art at the time of the invention to determine suitable and optimum amounts of dopant to be included in a doped polyaniline film so as to provide suitable and optimum electrical resistivity values based on the intended use of the PANI:PAAMPSA film. One of ordinary skill in the art would have been motivated to provide the PANI and dopant in a ratio capable of providing an electrical resistivity suitable for the intended use.

7. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. (5,489,400).

See the whole patent. In particular, see column 2 line 54-c. 3, l. 3, c. 3, l. 26-48, c. 17, l. 51-c. 18, l. 4, and claims 5 and 12.

Liu et al. disclose a PANI-PAAMPSA film but do not disclose the electrical resistivity of the film as required by claim 21. As taught in the present specification, this electrical resistivity

is a property of a specific material and does not change with dimension (e.g. see pages 3-4 of the specification). Liu et al. disclose that different ratios of PANI to PAAMPSA may be used. It would have been within the level of ordinary skill of a worker in the art at the time of the invention to determine suitable and optimum ratios of PANI to PAAMPSA and, concurrently, suitable and optimum electrical resistivity values, based on the intended use of the PANI:PAAMPSA film. One of ordinary skill in the art would have been motivated to provide the PANI and PAAMPSA in a ratio capable of providing an electrical resistivity suitable for the intended use.

8. Applicants' arguments filed December 23, 2002 have been fully considered but they are not persuasive with respect to the prior art rejections set forth above. (Note that the Angelopoulos patent has been applied to more claims than previously applied to, and different portions of the patent are specifically referenced than previously referenced. Accordingly, this action is not made final.)

With respect to the Angelopoulos patent, applicants argue that Angelopoulos et al. do not teach a polymeric counterion. It is the examiner's position that upon chemical crosslinking of pendant chemical crosslinkable groups of the dopant 2-acrylamido-2-methyl-1-propanesulfonic acid, the dopant is a polymeric counterion.

With respect to the Liu patent, applicants argue that Liu et al. do not teach or suggest a complex blended with a host polymer, and does not describe an electronic device or light-emitting diode. This argument is persuasive with respect to all claims except for new claim 21.

The film of claim 21 does not require that the complex be blended with a host polymer, and a PANI/PAAMPSA film having the electrical resistivity required of the film claimed in claim 21 is considered by the examiner to be obvious in view of the Liu patent for the reasons stated in the rejection.

9. Miscellaneous:

In line 1 of claim 8, "a" should be deleted.

In line 3 of claim 8, "of" should be deleted.

In line 1 of claim 13, "a" should be deleted.

10. Claims 19 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Applicant is advised that should claim 9 be found allowable, claim 22 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof, and should claim 14 be found allowable, claim 23 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Art Unit: 1774

12. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (703) 308-4413. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

The current fax numbers for Art Unit 1774 are (703) 872-9311 for official after final faxes and (703) 872-9310 or (703) 305-5408 for all other official faxes. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (703) 872-9041.)

MRY  
05/19/03



MARIE YAMNITZKY  
PRIMARY EXAMINER

1774